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EXAMINER

CHIN, BRAD Y

ART UNIT	PAPER NUMBER
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1744

DATE MAILED: 08/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/047,317

Applicant(s)

MCVEY ET AL.

Examiner

Brad Y. Chin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33 is/are allowed.
- 6) ☒ Claim(s) 18-32 is/are rejected.
- 7) ☒ Claim(s) 1-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Objections***

1. Claims 1, 12, 18 and 24 are objected to because of the following informalities:

In claims 1 and 12, Examiner finds Applicant's claim language unclear with respect to "along" in defining whether the first carrier gas flows inside or outside of the first duct. Examiner would appreciate clarification in Applicant's claim language to define if in fact the intended language should define the first carrier gas flow in or through the first duct. Additionally, Examiner notes that Applicant fails to provide the structural limitations for a source for a first carrier gas and a second carrier gas.

In claim 18, line 1, Applicant should amend, "area" to "region" for consistency with amended claim language in claims 18-19 and 29.

In claim 18, line 4, Applicant should add the conjunction, "and".

In claim 24, line 2, Applicant should amend, "area" to "region" for consistency with amended claim language in claims 18-19 and 29.

Appropriate correction is required.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-6, 8, 18, 20-21, 28, and 33 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 14-19, 24-26, 29, 35 of copending Application No. 10/077,224. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both disclose vapor decontamination systems, the systems comprising a flash vaporizer, a first duct along which a first carrier gas passes, a second carrier gas connected with the outlet of the vaporizer, for supplying the vapor into the first duct for mixing into the carrier gas passing through the first duct to the items/objects/area to be decontaminated.

3. Claims 1-11, 15-16, 18, 20-25, 27-33 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11, 14, 15-16, 19, 25-31, 35-41 of copending Application No. 10/940,495. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both disclose vapor decontamination systems, the systems comprising a flash vaporizer, a first duct along which a first carrier gas passes, a second carrier gas connected with the outlet of the vaporizer, for supplying the vapor into the first duct for mixing into the carrier gas passing through the first duct to the items/objects/area to be decontaminated.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 18, 20-22, 27, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Childers et. al. [U.S. Patent No. 5,876,664].

Regarding claim 18, Childers et. al. teach a method of decontaminating a defined region, the method comprising: pumping a carrier gas through a duct to the defined region (See Figure 6; See col. 6, lines 64-67 – conduit circuit 16 is fluidly connected to the chamber ports [inlet port 12 and outlet port 14 of sealable chamber 10] to provide a closed-loop flow path for recirculating a carrier gas into, through, and out of the chamber 10); in a passage different from the duct, converting a liquid into a microbial dispersion (See Figure 9; atomizer 56; See col. 7, lines 5-8 – liquid sterilant [in a different passage from conduit circuit 16] is preferably atomized in an atomizer 56 fluidly connected to the vaporizer 18 and delivered to the vaporizer in the form of a fine mist to increase the likelihood of complete vaporization, e.g. converting the liquid sterilant into an antimicrobial dispersion); and injecting the formed antimicrobial dispersion into a mixing zone defined in the duct upstream of the defined region to entrain the antimicrobial dispersion in the carrier gas (See Figures 6 and 9; See col. 7, lines 5-8 - liquid sterilant [in a different passage from conduit circuit 16] is preferably atomized in an atomizer 56 fluidly connected to the vaporizer 18 and delivered to the vaporizer in the form of a fine mist to increase the likelihood of complete vaporization, e.g. converting the liquid sterilant into an antimicrobial dispersion, e.g. injecting the atomized liquid sterilant into vaporizer 18 where it mixes with the carrier gas in conduit circuit 16 in a 'mixing zone' in the circuit conduit; the 'mixing zone' located upstream of chamber 10).

Regarding claim 20, Childers et. al. teach the method wherein the antimicrobial vapor includes hydrogen peroxide (See col. 5, lines 39-41 – The sterilant vapor preferably comprises

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hydrogen peroxide generated from 30-35% by weight of aqueous hydrogen peroxide solution) and further including:

heating a block which has an internal passage to a temperature sufficient to vaporize the hydrogen peroxide but which temperature is lower than a temperature which disassociates hydrogen peroxide; passing hydrogen peroxide into the passage through the block to vaporize the hydrogen peroxide (See Figures 7 and 8 – series of spaced vaporizer heaters, providing a heat gradient from top to bottom of vaporizer 18 when heat-sensitive vapor, such as hydrogen peroxide vapor, is the sterilant; See col. 7, lines 15-20 – as the liquid/vapor mixture descends through the tortuous [internal] path, heaters of lower wattage provide less heat at the middle and the bottom of the vaporizer, so as not to degrade the already-formed vapor, and to vaporize any remaining liquid);

passing the hydrogen peroxide vapor from the passage into the mixing zone; and mixing the hydrogen peroxide vapor into the carrier gas flow (See Figure 8; See col. 3, line 1-4 – a [flash] vaporizer comprising an internal tortuous path, having an entrance and an exit, is provided for vaporizing a liquid decontaminant delivered into a [mixing zone] with the flow of carrier gas. The mixing zone is located upstream from the inlet port 12 of the enclosure 10 at the point where the vaporized hydrogen peroxide is injected or introduced to the flow of carrier gas through conduit circuit 16).

Regarding claim 21, Childers et. al. teach the method including: blowing carrier gas through the passage with the hydrogen peroxide to create a positive pressure differential between the passage and the duct. (See Figure 6– circuit conduit 16 carrying carrier gas connected to flash vaporizer 18) for creating a positive pressure differential from the flash vaporizer to the mixing zone; See col. 8, lines 42-48 – first blower 22a and second blower 22b positioned upstream from the flash vaporizer and the mixing zone can be adjusted based on

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feedback from flow sensors 38 and 40 to provide a slightly positive pressure [differential] along the circuit conduit, e.g. from the flash vaporizer to the mixing zone).

Regarding claim 22, Childers et. al. teach the method further including heating (heater 58) and drying (adjustable drying unit 24) the carrier gas in the duct upstream of the mixing zone (See Figure 6 – heater 58 and adjustable drying unit 24 are fluidly connected to the conduit circuit upstream from the mixing zone).

Regarding claim 27, Childers et. al. teach the method further including directing antimicrobial dispersion in the defined region against at least one surface to be decontaminated (See col. 5, lines 48-54 – a liquid sterilant is vaporized or dispersed into the carrier gas flow entering the chamber, where the carrier gas carries the antimicrobial dispersion in, through, e.g. against at least one surface, and out the chamber through a closed, flow-through cycle).

Regarding claim 30, Childers et. al. further teach the method including:

heating a block above a vaporization temperature of a peroxy compound (See Figures 7 and 8 – block structure of vaporizer 18 housing heaters 60, 61, and 62, providing a heat gradient from top to bottom of vaporizer 18 when heat-sensitive vapor, such as hydrogen peroxide vapor, is the sterilant; See col. 7, lines 15-20 – as the liquid/vapor mixture descends through the tortuous [internal] path, heaters of lower wattage provide less heat at the middle and the bottom of the vaporizer, so as not to degrade the already-formed vapor, and to vaporize any remaining liquid); and

metering the peroxy compound in liquid form into an internal bore in the block to vaporize the peroxy compound (See Figure 8; See col. 3, lines 14-19 – metering the liquid hydrogen peroxide into the internal bore, e.g. tortuous path, of the block structure to vaporize the hydrogen peroxide).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Childers et. al., as defined above in paragraph 4.

Childers et. al. teach the method as defined above in paragraph 4. Childers et. al. further teach the method, wherein the carrier gas flow through the duct is at a rate of at least 20 cubic meters per minute (See col. 2, lines 60-63 – flow rates ranging from only one to two SCFM to flow rates of thousands of SCFM). Childers et. al. fail to teach that the defined region is an enclosure of at least 10,000 cubic meters.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate an enclosure of at least 10,000 cubic meters because Applicant has not disclosed that an enclosure of at least 10,000 cubic meters provides an advantage, is used for a particular purpose, or solves a stated problem; thus, expecting Applicant's invention to perform



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equally well with enclosures of other sizes because of the ability to regulate the flow rate of the incoming and circulating carrier gas and the volume of the liquid hydrogen peroxide.

Accordingly, it would have been obvious to modify Childers to obtain the invention with an enclosure of at least 10,000 cubic meters as defined in claim 19.

6. Claims 23-24 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Childers, as applied above in paragraph 4, and further in view of Edwards et. al. [U.S. Patent No. 6,077,480].

Regarding claims 23 and 24, Childers et. al. teach the method as defined above in paragraph 4. Childers' method further includes pulling carrier gas with antimicrobial dispersion from the enclosed region (See Figure – blowing units 22a and 22b pushes or forces the carrier gas around the closed-loop flow path, i.e. pulls the carrier gas with antimicrobial compound out outlet port 14 of chamber 10 through conduit circuit 16), but fails to teach that the carrier gas with antimicrobial dispersion is pulled through a microbe-trapping filter. Childers' et. al. method further includes drying and heating the carrier gas and passing the dried, heated carrier gas to the duct upstream of the mixing zone (See Figure – adjustable drying unit 24 downstream from outlet port 14 and converter 20, and heaters 58a and 58b for heating the carrier gas; passing the dried, heated carrier gas through the duct into vaporizer 18, upstream of the mixing zone, e.g. outlet of vaporizer 18 after new liquid hydrogen peroxide has been vaporized). Childers et. al. fail to teach that the carrier gas with antimicrobial dispersion from the enclosed region is pulled through a microbe-trapping filter.

Edwards et. al. teach a microbe-trapping filter disposed adjacent to the duct inlet for filtering the incoming carrier gas. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a microbe-trapping filter, as in Edwards et. al., for

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filtering the pulled carrier gas with antimicrobial vapor from the enclosed region because the microbe-trapping filter would serve to remove impurities that may be present in the exiting carrier gas/vaporized sterilant mixture before passing the carrier gas back into circuit conduit 16. Similarly, it would have been obvious to provide additional microbe-trapping filters in the system of Childers et. al., i.e. a microbe-trapping filter near the outlet port 14 of chamber 10 for filtering the pulled carrier gas with antimicrobial vapor from the enclosed region, because it would have been a desired condition of the system to purify the carrier gas as much as possible before introducing and mixing new, pure carrier gas from an external source into the conduit circuit 16. Providing additional microbe-trapping filters throughout Childers' et. al. system would increase the purity of the constituents in the system (Duplicating part for a multiple effect – *In re Harza*, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960)).

Regarding claim 28, Childers et. al. teach the method as defined above in paragraph 4, but fail to teach the method further including monitoring concentration of the antimicrobial compound in the vapor dispersion in the room and carrier gas conditions in the duct upstream of the mixing zone, and controlling a rate at which the antimicrobial dispersion is supplied to the duct in accordance therewith.

Edwards et. al. teach the method further including: monitoring concentration of the antimicrobial compound in the dispersion in the room and carrier gas conditions in the duct upstream of the mixing zone (See col. 3, line 54 to col. 4, line 12 – plurality of monitors 52 monitor conditions within the enclosure 32. Monitors include temperature sensors, humidity or vapor concentration sensors, air flow or turbulence sensors, pressure sensors, and the like. Processor 56 addresses a pre-programmed look up table 58, which adjusts the hydrogen peroxide metering pump 12 and the carrier gas regulator 18 to bring monitored conditions to the reference values); and controlling a rate at which the antimicrobial dispersion is supplied to the

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duct in accordance therewith (See col. 3, lines 51-61 – control system 50 regulates the introduction of hydrogen peroxide to the vaporizers [and eventually to the duct] in accordance with local conditions within the chamber. The control system includes a comparator 54 for comparing the monitored condition signals from the monitors with pre-selected ideal hydrogen peroxide vapor concentration and other conditions as indicated by reference signals). Because Childers et. al. provide the motivation for monitoring the concentration of the antimicrobial compound in the room, the temperature and the relative humidity in the defined region, the air-flow rate, and sterilant vapor injection rate using processing unit 42 for maintaining a predetermined percent saturation of the sterilant vapor during sterilization (See col. 9, lines 1-24), it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Edwards et. al. into the method, as taught by Childers et. al., to further monitor the conditions within the defined region and in the duct upstream of the mixing zone for controlling the rate at which the antimicrobial dispersion is supplied to the duct in maintaining the necessary predetermined percent saturation of the sterilant vapor during sterilization.

Regarding claim 29, Childers et. al. teach the method as defined above in paragraph 4, but fail to teach the method further including monitoring a concentration of the antimicrobial compound in the dispersion in the defined region until the concentration reaches a pre-selected level; and holding the dispersion in the defined region without further addition of antimicrobial dispersion for a period of time.

Edwards et. al. teach the method further including: monitoring concentration of the antimicrobial compound in the vapor in the defined region until the concentration reaches a pre-selected level; and holding the vapor in the defined region without further addition of vapor for a period of time (See col. 3, line 51 to col. 4, line 21 – control system 50 and plurality of monitors

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52 for monitoring the concentration of the antimicrobial compound in the vapor in the defined region where the control system 50 with processor 56 regulates adjustment valves, which adjusts the hydrogen peroxide metering pump 12, i.e. holding the vapor in the defined region to a pre-selected level for decontamination of the defined region without further addition of vapor for a period of time, e.g. the time to decontaminate the enclosure). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Edward et. al. into the method, as taught by Childers et. al., because the step(s) of Edwards et. al., allow for maintaining the predetermined percent saturation over a period of time during sterilization, e.g. for efficacy of sterilization, as taught by Childers et. al. (See col. 9, lines 5-8).

7. Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Childers et. al., as applied above in paragraph 4, and further in view of Raniwala [U.S. Patent No. 6,645,429].

Childers et. al. teach the method as defined above in paragraph 4. Childers et. al. fail to teach that the defined region is a large room and the duct includes existing HVAC work. Childers et. al. further fail to teach the method further including supplying carrier gas through a plurality of ducts into the room; and injecting hydrogen peroxide dispersion into the carrier gas in each of the ducts.

Raniwala teaches a sterilization system and method wherein the defined region is a large room (See col. 3, line 51-54 – clean room, or series of clean rooms or enclosed rooms) and the duct includes existing HVAC duct work (HVAC system 29), where carrier gas is supplied through a plurality of ducts into the room and/or sterilizing agent is injected into the room through each of the ducts (See col. 4, lines 13-17 – HVAC system 29 can form part of the sterilizing system for room 10 for introducing sterilizing agent into atmosphere 18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of Childers et. al. for decontaminating a defined region into the system of Raniwala because Raniwala's HVAC existing duct work provides for multiple feeds of a sterilizing agent, such as the mixtures of dispersed hydrogen peroxide and carrier gas of Childers et. al., into the contaminated room, allowing the user to regulate the concentration and amount of hydrogen peroxide dispersed into the room.

8. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Childers et. al., as applied above in paragraph 4, and further in view of Rickloff et. al. [U.S. Patent No. 5,445,792].

Childers et. al. teach the method as defined above in paragraph 4. Childers et. al. fail to teach the method further including entraining the liquid peroxy compound into a controlled air flow in the passage.

Rickloff et. al. teach the method of sterilization with hydrogen peroxide where the liquid peroxy compound is entrained into a controlled air flow upstream from the vaporizer (See Figure 1; liquid hydrogen peroxide from source 10 is entrained into a controlled air flow of carrier gas, air, from ROOM AIR, by regulating three-way valve 16 (flow paths A-C and B-C), in the passage).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the method of Rickloff et. al. for entraining the liquid peroxy compound into a controlled air flow in the passage of Childers' et. al. system because controlling the flow rate of the air flow containing liquid peroxy compound into the vaporizer would provide the user with the ability to regulate the vaporization rate of the peroxy compound in response to the

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parameters monitored by the processing unit and the respective temperature 44, relative humidity 46, and vapor concentration 48 sensors within chamber 10.

9. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Childers et. al. and Rickloff et. al., as applied above in paragraph 4, and further in view of Naperkowski et. al.

Childers et. al. and Rickloff et. al. teach the methods as defined above in paragraph 4. Childers et. al. and Rickloff et. al. fail to teach the method wherein the passage turns and further including propelling peroxy compound droplets into heated passage surfaces at turns in the passage.

Naperkowski et. al. teach a system for flash vaporization of a liquid to a gas comprising a metal block vaporization system having an internal bore with a spiral rod (spiral rod 45 inserted in first bore 12) and further teaches a method for propelling droplets into heated passage surfaces at turns in the passage (See col. 5, lines 15-20 – spiral rod creates a tortuous path for the water and steam as it passes upwardly through the bore. The spiral rod creates an environment in which the water and steam frequently contact heated surfaces within the vaporization device, i.e. as it travels from the inlet to the outlet of the vaporization system, the mixture is propelled against the bore surfaces at turns in the spiral rod in the internal bore. As the mixture contacts the heated surfaces – heated by heating elements 15 – the mixture is vaporized).

Childers' et. al. continuous-operation, closed loop decontamination system requires the use of a flash vaporizer comprising at least one heater for controlling the heat within the vaporizer block and a tortuous passage for the liquid/vapor peroxy compound mixture to travel through from the inlet to the outlet of the flash vaporizer. Naperkowski et. al. teach a flash steam generator [vaporizer], which can be used as an integral component of a sterilizer, which

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also includes at least one heater and a tortuous passage for a mixture, such as a peroxy compound, to travel through from the inlet to the outlet of the flash vaporizer as liquid sterilant is vaporized. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the flash vaporization generator 10, and accordingly a passage that turns, providing propelling a mixture into the bore surfaces at turns in passage to facilitate vaporization, of Naperkowski for the flash vaporizer 18 of Childers et. al. because Naperkowski's et. al. system provides the functionality of vaporizing the liquid/vapor sterilant mixture as required by the system in Childers et. al.

### ***Response to Arguments***

10. Applicant's arguments, see pages 10 and 11, filed 12 May 2005, with respect to independent claim 1 and dependent claims, 2-6, 8-11, and 13-15, have been fully considered and are persuasive. In light of the amendment to claim 1, the rejection(s) of claims 1 and 13-15 as rejected under 35 U.S.C. 102(a) as being anticipated by Edwards et. al. [U.S. Patent No. 6,077,480], the rejection(s) of claims 1, 8-9, and 11 as rejected under 35 U.S.C. 102(a) as being anticipated by Childers et. al. [U.S. Patent No. 5,876,664], the rejection(s) of claims 2-6 as rejected under 35 U.S.C. 103(a) as being unpatentable over Childers et. al. in view of Naperkowski et. al. [U.S. Patent No. 5,949,958] and, the rejection(s) of claim 10 as rejected under 35 U.S.C. 103(a) as being unpatentable over Childers et. al. in view of Edwards et. al. have been withdrawn.

11. Applicant's arguments, see page 11, filed 12 May 2005, with respect to independent claim 12 and dependent claims, 7, 16, and 17, have been fully considered and are persuasive. In light of the amendment to claim 12, the rejection(s) of claims of 12, 7, 16, and 17 have been withdrawn.

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12. Applicant's arguments, see page 11, filed 12 May 2005, with respect to independent claim 18 and dependent claims, 19-32, have been fully considered and are not persuasive. Examiner finds Applicant's arguments unpersuasive. Applicant has not provided arguments, which distinguish the teachings of Childers et. al. from Applicant's claimed subject matter. Childers et. al. teach each and every method limitation described in the claim language of claim 18, as described above in paragraphs 2-7.

13. Applicant's clarification of Examiner's statement, see page 12, filed 12 May 2005, with respect to the reasons for the indication of allowable subject matter for claim 33 is appreciated.

#### ***Reasons for Allowance***

14. Claims 1-6, 8-11, and 13-15 are objected to in view of the aforementioned claim objection(s), but would be allowable if rewritten to address the objection(s) to the base claim, as identified above in paragraph 1.

The following is a statement of reasons for the indication of allowable subject matter: The subject matter of claims 1-6, 8-11, and 13-15 includes the limitations for a vapor decontamination system, the system comprising at least a first duct along which a first carrier gas flow is passed to a defined region to be decontaminated, a second carrier gas flow connected with the flash vaporizer, an outlet of the flash vaporizer being connected to the duct for supplying the second carrier gas flow and vapor into the duct for absorption into the first carrier gas flow passing through the duct at a mixing zone downstream of the flash vaporizer. Rickloff et. al. [U.S. Patent No. 5,445,792] teach a decontamination system, comprising a first duct along which a carrier gas flow is connected to a flash vaporizer, a flash vaporizer for vaporizing a liquid which includes an antimicrobial compound into vapor, an outlet of the flash vaporizer being connected to a duct, but fail to teach that the duct carrying the carrier gas/vapor mixture is connected to the duct for supplying the mixture into a second carrier gas flow



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downstream of the flash vaporizer. Edwards et. al. [U.S. Patent No. 6,077,480] teach a decontamination system, comprising at least a first duct along which a carrier gas flow passes to a defined region to be decontaminated, a flash vaporizer for vaporizing a liquid which includes an antimicrobial compound into vapor, an outlet of the flash vaporizer, but fail to teach that the outlet of the flash vaporizer is connected to the duct, which carries a second carrier gas flow for absorption of the first carrier gas/vapor mixture into the first carrier gas passing through the duct at a mixing zone downstream of the flash vaporizer.

None of the references teach the claimed limitations nor would it have been obvious to combine references to achieve the claimed inventive subject matter; thus, claims 1-6, 8-11, and 13-15 are free of the prior art and are allowable.

15. Claims 12, 7, 16 and 17 are objected to in view of the aforementioned claim objection(s), but would be allowable if rewritten to address the objection(s) to the base claim, as identified above in paragraph 1.

The following is a statement of reasons for the indication of allowable subject matter: The subject matter of claims 12, 7, 16, and 17 includes the limitations for a heated block with an outlet being connected to a duct, along which a first carrier gas flow is passed to a defined regions to be decontaminated, for supplying a second carrier gas flow with a dispersed liquid to a mixing zone in the duct for absorption into the first carrier gas flow passing through the duct. Childers et. al. [U.S. Patent No. 5,876,664] in view of Naperkowski et. al. [U.S. Patent No. 5,949,958] teach a decontamination system for decontaminating a defined region, the system comprising a first duct along which a first carrier gas flow is passed to a defined region, a heated block and fluid passage for dispersing a liquid which includes an antimicrobial compound into the carrier gas flow, the heated block having an inlet and an outlet, the outlet of the block

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being connected to the duct, but fail to teach a second carrier gas being supplied for absorption with the first carrier gas and dispersed liquid mixture at a mixing zone in the duct. Edwards et. al. [U.S. Patent No. 6,077,480] teach a decontamination system, comprising at least a first duct along which a carrier gas flow passes to a defined region to be decontaminated, a flash vaporizer, e.g. a heated block, for vaporizing a liquid which includes an antimicrobial compound into vapor, an outlet of the flash vaporizer, but fail to teach that the outlet of the flash vaporizer is connected to the duct, which carries a second carrier gas flow for absorption of the first carrier gas/vapor mixture into the first carrier gas passing through the duct at a mixing zone downstream of the flash vaporizer.

None of the references teach the claimed limitations nor would it have been obvious to combine references to achieve the claimed inventive subject matter; thus, claims 12, 7, 16, and 17 are free of the prior art and are allowable.

16. Claim 33 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The subject matter of claim 33 could either not be found or was not suggested in the prior art.

Claim 33 includes the limitations for the method of decontaminating an enclosure by introducing a flow of an aqueous solution of a peroxy compound into a passage upstream of a bend, where the peroxy compound mixes with a first carrier gas stream and vaporized in the passage; and then mixing the vaporized aqueous solution and first carrier gas stream with a second carrier gas stream in a mixing zone downstream of the passage, where the mixture is transported to the enclosure. The closest prior art of Rickloff teaches (1) the introduction, mixing, and vaporization of the first carrier stream with the aqueous hydrogen peroxide and (2) the existence

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of a second carrier gas, but fails to teach the mixing of the second carrier gas with the resulting vaporized solution downstream of the passage.

None of the references teach the claimed limitations nor would it have been obvious to combine references to achieve the claimed inventive subject matter; thus, claim 33 is free of the prior art and is allowable.

### ***Conclusion***

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brad Y. Chin whose telephone number is 571-272-2071. The examiner can normally be reached on Monday – Friday, 8:00 A.M. – 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sun (John) Kim, can be reached at 571-272-1142. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

byc  
July 13, 2005

  
**JOHN KIM**  
**SUPERVISORY PATENT EXAMINER**